

Specifications, frequency response & Thiele/Small Parameters

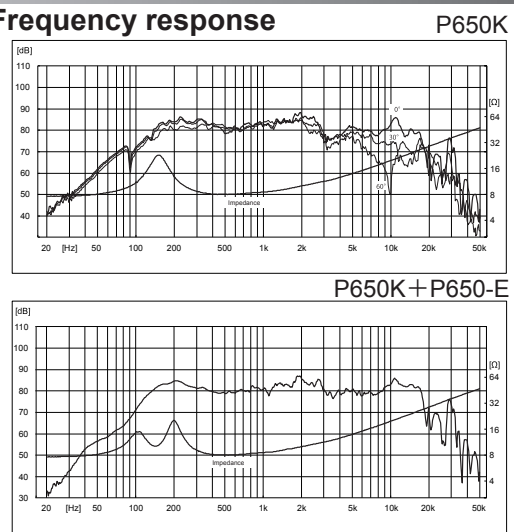
■ Specifications

Type	6.5cm cone shaped full range
Impedance	8Ω
Lowest resonance freq.	157Hz
Frequency response	f0 ~ 20kHz
Sound pressure level	84dB/w(1m)
Input (Mus.)	15W
m0	1.8g
Q0	0.99
Effective vibration radius	2.6cm
Magnet mass	74g
Gross mass	249g
Baffle hole dimension	Ø60 (Ø58) *Refer to the baffle hole dimension drawings.
Standard enclosure type	Bass reflex type
Accessories	Wood screw x 4pcs, Washer x 4 pcs

■ Thiele/Small Parameters

Size	65	mm	2.6	in
Overall Diameter	65	mm	2.6	in
Baffle Hole Diameter	60	mm	2.4	in
Depth	38.2	mm	1.5	in
Voice Coil Diameter	20	mm	0.8	in
Cast / Stamped	Stamped			
Impedance	8	ohm		
Reproduction Freq. Response	fs-20	kHz		
Sound Pressure Level	84	dB/W (m)		
Rated Input	5	W		
Music Power	15	W		
Magnet Weight	74	g	0.163	lb
Net Weight	249	g	0.549	lb
Equivalent Diaphragm Radius	a	26	mm	
Effective Cone Diameter	D	52	mm	
Surface Area of Cone	Sd	0.0021	m ²	

■ Frequency response



Nominal Impedance	Zn	8	ohm
Resonance Frequency	Fs	157	Hz
DC Resistance	Re	7.3	ohm
Coil Inductance	Le	0.25	mH
Mechanical Q	Qms	3.39	
Electromagnetic Q	Qes	1.4	
Total Q	Qts	0.99	
Equivalent Mass	Mms	1.8	g
BL Product (Factor Force)	BL	3.06	Tesla/m
Compliance Equivalent Volume	Vas	0.35	L
Voice Coil Overhang	Xmax	0.5	mm
Reference Efficiency n0	Eff/n0	0.1	%
Mechanical Compliance of Suspension	Cms	0.576	m/N
Efficiency Bandwidth Product	EBP	112.143	



FULL RANGE SPEAKER UNIT



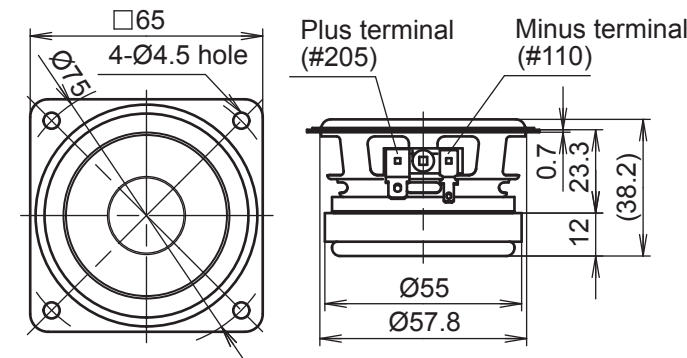
Thank you for purchasing P650K.
Read through this manual so that you can correctly use it.

The P650K is a suitable full range speaker driver especially for first time craft users. A light-weight cone paper and a high-loss rubber surrounding realize a bright and clear mid-to-high range and reasonably damped low range reproduction. You can enjoy an excellent stereo image and sound field achieved by the small-diameter speaker unit.

P650K Main Features

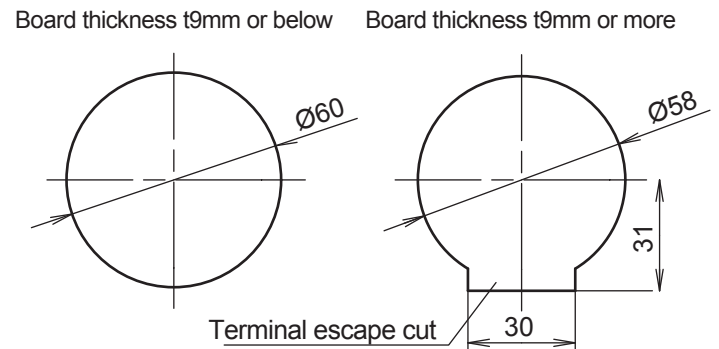
- * **Banana pulp blended light-weight cone paper / High-loss foamed rubber surrounding**
Blending a banana pulp with two wooden pulps holding different physicality realizes a sufficient stiffness and high-loss. A high-loss foamed surrounding with an up-roll shape is employed.
- * **Mechanical 2-way center cap**
The same material as the cone paper is employed on the center cap for improving the sound unification. A mechanical 2-way structure which directly connects the center cap with the voice coil bobbin extends a high range sound reproduction further.

Dimensions



Baffle hole dimensions

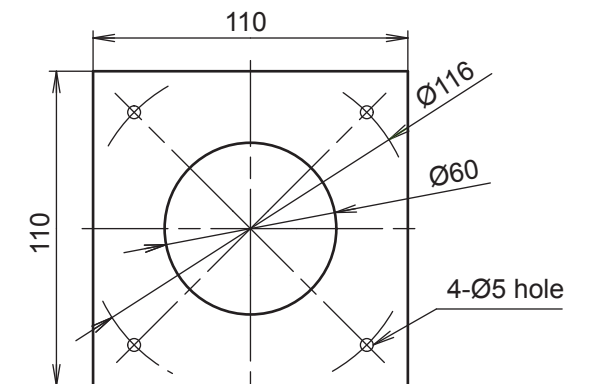
The baffle hole should be shaped according to board thickness as shown in the drawings below. If you solder the cable directly to the speaker terminal, shape the hole as in the right side drawing with Ø58 hole.



Recommended enclosure

For the easy start, we recommend a combination with a P650-E enclosure kit. The P650-E is designed for the P650K that can easily achieve the enticing full range speaker system. The P650-E comes with the speaker terminals, internal wirings and sound absorbent pre-fitted and acoustically tuned. Please use the P650-E taking advantage of easy mount.
To enhance the low frequency more than P650-E, we recommend the use of P1000-E. As the internal volume is larger, you can feel low frequency more. In this case, since P650K cannot be mounted directly, prepare the baffle board as shown in the drawing on the right. The board material is MDF with t9 thickness, the baffle hole is 60mm diameter. As the screw position is made as Ø116, you can easily replace the speaker driver with P1000K.

Baffle hole dimensions to mount the P1000-E
Board material: MDF t9



CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER - SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

- The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.
- The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:
To reduce the risk of fire or electric shock, do not expose apparatus to rain or moisture.

Avertissement:
Pour réduire le risque d'incendie ou de choc électrique, ne pas exposer cet appareil sous la pluie et l'humidité.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all Instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
The apparatus shall be used in an open area.
15. *Cet appareil doit être utilisé dans un endroit à aire ouverte.*
Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on apparatus.
L'appareil ne doit pas éclaboussures et aucun objet ne contenant de liquide, tel qu'un vase, ne doit être placé sur l'objet.
Mains plug is used as disconnect device. It shall remain readily operable and should not be obstructed during intended use. To completely disconnect the apparatus from supply mains, the mains plug of the apparatus shall be disconnected from the mains socket outlet completely.
La prise du secteur et utilisé pou déconnecter le système. La prise du secteur ne doit pas être obstruée ou doit être facilement accessible pendant son utilisation. Pour être complètement déconnecté de l'alimentation d'entrée, la prise doit être débranchée du secteur.